

## CLAIMS

What is claimed is:

1. A method of matching for an RMR based 3D scene model refinement system comprising:

per-frame rendering of a motion vector field given the scene model;

global and local matching of the rendered motion vector field to the corresponding motion vector field extracted from the video stream via a (standard or customized) motion estimation algorithm, thereby enabling directed adjustment of model parameters;

a hierarchical sequencing of model parameter class refinement when applying said method; and

the application of reverse mapping to attain approximate values for unrefined model parameter classes.